DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 2, 18-21, 23 and 25 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The process of making the product and the particle size of 0.1 to 5000 μm are critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

In the instant specification, at page 8, lines 15-27, it is stated that:
"In the present invention, the fine hollow powder can be produced by spray drying an exfoliated titania sol, and its formation mechanism can be presumed as follows. As shown in Fig. 1, the sprayed laminated titania sol takes the form of fine liquid droplets I. which are immediately thereafter exposed to high temperatures for drying. Evaporation of water takes place not only on the surfaces of the liquid droplets, but also in the inside space due to rapid heating of the liquid droplets as whole, causing to inflate as balloons and dry at the same time. Thus, laminated particles 2 are stuck with one another to form a fine hollow powder 3 having an outer diameter of 0.1 - 5,000 μm"

It can be seen from the description that, the claimed feature "laminated oxide particles stuck together" cannot be independently possible because the "formation mechanism" is "presumed" by the process of making, which is spray drying. Therefore, without the process associated with the product features, the claim is based on a non-enabling disclosure. In addition, that the term "laminated particles 2 are stuck with one another to form a fine hollow powder 3" is only disclosed in connection with a particle size of 0.1

to 5000 μm. Therefore, claims with fail to include these two critical limitations are deemed non-enabling.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 is incomplete (See previously submitted claim 18). Claim 19 is deemed indefinite in view of its dependency on claim 18.

Allowable Subject Matter

5. Claims 4-6, 8 and 9 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter: None of the prior art references, singly or combined, teaches or suggests the process of spray drying in making hollow particles having the shell structure as claimed, i.e. laminated titanium oxide particles stuck together. EP 0 601 594 ("EP'594") teaches hollow particles comprising fused or sintered titanium oxide particles in the shell and having the shell/wall thickness ratio within the claimed range. However, the titanium oxide particles on the shell of EP'594 powder are not laminated particles. EP'594 teaches a spraying method to form the hollow particle, but either titania sol or a dispersion of precursor of titania is used in spraying instead of an exfoliated titania sol. Accordingly, laminated titanium oxide particles cannot be formed on the shell as

required in claims the instant claims because the titanium oxide used in spraying taught by EP'094 is not a suspension of exfoliated titania.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. (Holly) T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 12:30 p.m. to 9:00 p.m. (EST), Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. (Holly) T. Le/
Primary Examiner, Art Unit 1788

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